

## 旋转式平台惯导系统随机误差自补偿技术研究

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摘要：

针对旋转式平台惯导中旋转运动对惯性仪表的随机误差是否有抑制的问题，在建立旋转式平台惯导系统误差传播方程的基础上，利用积分换元法建立了台体旋转前后系统导航误差与噪声相关函数间的数学表达式，讨论了旋转运动对白噪声和三种典型有色噪声的抑制情况。得出了旋转运动对白噪声无抑制、在旋转速率满足一定条件时对典型有色噪声有抑制的结论。最后通过仿真实验验证了理论分析的正确性。研究结果为旋转式平台惯导系统的工程设计、改进提供一定的理论支持。

关键词：旋转；平台惯导系统；随机误差；自补偿

## Research on Auto-compensation Technology of Random Error for Carouseling GINS

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**Abstract:**

Based on the error propagating equations, the mathematical representation between navigation error and related functions of noise was obtained by using integral character. Random error propagating rule of Carouseling Gimbaled INS is explored, and the results that the platform' rotation could depress the typical colored noise while rotation angular velocity satisfied some condition and could not depress the white noise were obtained finally. Then it is proved that the theoretical analysis is feasible through simulation. The research provides certain theoretical support for the engineering design and modification of GINS.

**Keywords:** Carouseling; GINS; Radom error; Auto-compensation

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